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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/475,499	12/30/1999	THOMAS D. MERRITT		6391

7590

09/01/2006

Thomas Merritt
2027 Thomas Street
Hollywood, FL 33020

EXAMINER

LEUNG, JENNIFER A

ART UNIT	PAPER NUMBER
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1764

DATE MAILED: 09/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/475,499

Applicant(s)

MERRITT, THOMAS D.

Examiner

Jennifer A. Leung

Art Unit

1764

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) 8 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☒ Claim(s) 7 is/are objected to.
- 8) ☒ Claim(s) 1-8 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 December 1999 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of claims 1-7 in the reply filed on August 1, 2006 is acknowledged. Claim 8 is withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim.

Claim Objections

2. In claim 6, "a laser beam" (line 6) should be changed to --said laser beam--, to establish the relationship with the laser beam set forth in claim 1, line 3. Also, "converter" (line 7) should be changed to --conversion means--, for consistency in claim terminology. Appropriate correction is required.

3. In claim 7, "gas exit ports" (line 3) should be changed to --fluid outlets--, for consistency in claim terminology. Also, "converters" (line 6) should be changed to --conversion means--, for consistency in claim terminology. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 4 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear as to the structural limitation applicant is attempting to recite by "said split beam *can be* directed to at least one of said plurality of said conversions means" because it is unclear as to whether the limitation set forth by the phrase "can be" is a positive structural limitation.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Engler et al. (US 5,569,441).

Engler et al. (FIGs. 2 and 5; column 6, lines 32-47 and lines 56-62; see also column 3, line 63 to column 4, line 15) discloses an apparatus comprising, in combination, a laser (see figures) for the purpose of creating a laser beam; a catalytic conversion means (housing 1 containing catalytic carrier 2), said means including at least one fluid inlet (via entrance opening 7) and at least one fluid outlet (via exit opening 8).

Instant claim 1 structurally reads on the apparatus of Engler et al.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Engler et al. (US 5,569,441) in view of Keehn et al. (US 4,469,574).

Engler is silent as to the laser comprising, specifically, a carbon dioxide laser. In any

Art Unit: 1764

event, it would have been obvious for one of ordinary skill in the art at the time the invention was made to select a carbon dioxide laser for the laser in the apparatus of Engler, on the basis of suitability for the intended use thereof, because the use of carbon dioxide lasers for activating chemical reactions is conventional in the art, as taught by Keehn (column 1, lines 24-39).

7. Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Engler et al. (US 5,569,441) in view of Keehn et al. (US 4,469,574), as applied to claim 2 above, and further in view of Givens et al. (US 3,969,083).

Regarding claim 3, Engler et al. is silent as to the provision of a plurality of catalytic conversion means. In any event, it would have been obvious for one of ordinary skill in the art at the time the invention was made to provide a plurality of catalytic conversion means in the modified apparatus of Engler et al., on the basis of suitability for the intended use, because the duplication of part was held to have been obvious. *St. Regis Paper Co. v. Beemis Co. Inc.* 193 USPQ 8, 11 (1977); *In re Harza* 124 USPQ 378 (CCPA 1960). Furthermore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to provide a plurality of catalytic conversion means in the modified apparatus of Engler et al. because the plural means is more efficient than a single means in pollution conversion, as taught by Givens et al. (see column 8, line 61 to column 9, line 9; FIG. 1, 2).

Regarding claim 4, Engler et al. further discloses means (a splitter 19; FIG. 5) to split the laser beam into a plurality of beams.

8. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Engler et al. (US 5,569,441) in view of Keehn et al. (US 4,469,574) and Givens et al. (US 3,969,083), as applied above, and further in view of Koloc (US 3,720,885).

Art Unit: 1764

Regarding claim 5, the collective teaching of Engler et al. and Keehn et al. is silent as to the carbon dioxide laser comprising a flowing gas carbon dioxide laser, wherein said laser includes a fluid inlet and a fluid outlet, whereby gaseous carbon dioxide is permitted to enter said laser, flow through the laser, and exit the laser.

Koloc teaches a conventional flowing gas carbon dioxide laser (see FIG. 1, 2), wherein the laser includes a fluid inlet (via nozzles 16 and the openings of electrode 22) and a fluid outlet (via the openings of electrode 42), whereby gaseous carbon dioxide (see column 2, lines 53-59) is permitted to enter the laser, flow through the laser (through laser cavity 40), and exit the laser.

It would have been obvious for one of ordinary skill in the art at the time the invention was made to substitute the flowing gas carbon dioxide laser of Koloc for the carbon dioxide laser in the modified apparatus of Engler et al., on the basis of suitability for the intended use thereof, because the carbon dioxide laser of Koloc is compact, sturdy and capable of high output power (see column 2, lines 5-9), and furthermore, the substitution of known equivalent structures involves only ordinary skill in the art. *In re Fout* 213 USPQ 532 (CCPA 1982); *In re Susi* 169 USPQ 423 (CCPA 1971); *In re Siebentritt* 152 USPQ 618 (CCPA 1967); *In re Ruff* 118 USPQ 343 (CCPA 1958).

Regarding claim 6, Koloc further teaches that the fluid exit of the laser 40 is to be fluidly interconnected with a catalytic conversion means (a catalytic antipollution filter 58; column 6, lines 47-64), such that unwanted chemicals produced by the laser, including carbon monoxide and various oxides of nitrogen, are reconverted to carbon dioxide and nitrogen. It would have been obvious for one of ordinary skill in the art at the time the invention was made to provide a fluid interconnection means for permitting the fluid exit of the laser to interconnect with the fluid

Art Unit: 1764

inlet of the at least one conversion means in the modified apparatus of Engler et al., because the interconnection of the fluid exit of the laser and the fluid inlet of the conversions means would allow for the unwanted chemicals of carbon monoxide and the various oxides of nitrogen to be reconverted to carbon dioxide and nitrogen, as taught by Koloc.

9. Claims 1-3 are rejected under 35 U.S.C. 103(a) as obvious over Keehn et al. (US 4,469,574).

Regarding claim 1, Keehn et al. (FIG. 1-3) discloses an apparatus comprising in combination, a laser 32 for the purpose of creating a laser beam; a conversion means (reaction chamber 30), said means including at least one fluid inlet (via inlet conduit 12, inlet valve 10) and at least one fluid outlet (via outlet valve 18). Keehn et al. further discloses that catalysts may be utilized in the chamber 30 (see column 7, lines 48-50). Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to provide a catalytic conversion means as the conversion means 30 in the apparatus of Keehn et al., on the basis of suitability for the intended use, as specifically suggested above by Keehn et al.

Regarding claim 2, Keehn et al. further discloses that carbon dioxide lasers are commonly used to activate chemical reactions (see column 1, lines 24-39). Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to select a carbon dioxide laser for the laser 32 in the apparatus of Keehn et al., on the basis of suitability for the intended use, because the use of carbon dioxide lasers is conventional, as specifically taught by Keehn et al. above.

Regarding claim 3, Keehn et al. further discloses that the apparatus may comprise, "chambers for other reactions" (see column 4, lines 26-40). Therefore, it would have been

Art Unit: 1764

obvious for one of ordinary skill in the art at the time the invention was made to provide a plurality of said catalytic conversion means in the apparatus of Keehn et al., on the basis of suitability for the intended use, as specifically suggested above by Keehn et al. Furthermore, the duplication of part was held to have been obvious. *St. Regis Paper Co. v. Beemis Co. Inc.* 193 USPQ 8, 11 (1977); *In re Harza* 124 USPQ 378 (CCPA 1960).

Allowable Subject Matter

10. Claim 7 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The prior art does not disclose or adequately teach the claimed apparatus, further comprising a chemical combining means disposed in fluid communication with the gas exit ports of the plurality of catalytic conversions means, wherein the converted gas from each of the catalytic conversion means is chemically combined to produce a fuel product.

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer A. Leung whose telephone number is (571) 272-1449. The examiner can normally be reached on 9:30 am - 5:30 pm Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn A. Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

Art Unit: 1764

applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jennifer A. Leung
August 22, 2006 


ALEXA DOROSHENK NECKEL
PRIMARY EXAMINER